

SurePOS 500 Series



Operating System Installation Guide - SurePOS 500 Model 514

Note

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 19.

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About this guide

This guide describes how to install the Microsoft Windows software for the IBM SurePOS 500 Model 514.

Who should read this guide

This guide is intended for the person who will install the operating environment for the IBM SurePOS 500, Model 514.

How this guide is organized

This guide is organized as follows:

- Chapter 1, “Models and pre-installation procedure,” on page 1 describes what is needed before you begin your installation.
- Chapter 2, “Installing Windows 2000,” on page 3 provides the Windows 2000 installation procedures
- Chapter 3, “Installing Windows XP and Windows Embedded for Point of Service (WEPOS),” on page 7 provides the Windows XP/WEPOS installation procedures.
- Chapter 4, “Installing the Windows 2000/Windows XP and WEPOS drivers,” on page 9 describes the drivers required for your installation.
- Chapter 6, “Troubleshooting,” on page 13 describes possible causes of the most common issues encountered during installation.

Related publications

The following IBM publications are also available from the IBM Retail and Store Solutions web site at www.ibm.com/solutions/retail/store.

- *IBM SurePOS 500 Model 514 Planning, Installation, and Service Guide*, GA27-4361

Diagnostic programs are downloadable from the IBM Retail and Store Solutions web site at www.ibm.com/solutions/retail/store. The use of generic drivers from manufacturer web sites is not recommended.

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Chapter 1. Models and pre-installation procedure

This section describes the various models and a procedure you perform before installing the operating system.

Models and features

Table 1 describes the common models. Administrative models and other models that represent different service repair options are not listed. See your IBM representative for a complete list.

Table 1. Model 514 models

Model Number	Description
4851-514	System unit with VIA 1.2 GHz processor, 40 GB HDD and either 256 or 512 MB memory
4851-E14	System unit Model 514, preloaded with the Windows XP Embedded for Point of Service
4951-514	Express bundle; dependant upon country, could include: <ul style="list-style-type: none">• Integrated MSR• Integrated customer display• 4610 printer and cash drawer

BIOS update and configuration

1. Before beginning, obtain the latest BIOS update for the SurePOS 500, Machine type 4851, Model 514 from the IBM Retail Store Solutions support page, www.ibm.com/solutions/retail/store/support/.
2. After updating the BIOS, choose **Load Optimized Defaults** in BIOS setup.

Chapter 2. Installing Windows 2000

Windows 2000 does not provide native support for all USB CD-ROM drives. You must modify the installation media since no interface exists for an IDE CD-ROM drive. Follow these instructions to install the operating system.

Requirements

- Windows 2000 Professional CD-ROM
- Windows 2000 Professional Setup Boot Diskettes (4 diskettes created by the CD-ROM). If you do not have these disks, you can create them using MAKEBOOT.EXE, located in the \bootdisk folder on the CD-ROM
- USB or PS/2 Keyboard and Mouse
- External USB Floppy Disk Drive
- External USB CD-ROM Drive

Configuring the Windows 2000 Professional setup diskettes

If Windows 2000 does not provide native support for the CD-ROM drive being used for installation, you must modify the Windows installation media since no interface exists for an IDE CD-ROM drive. Follow the directions below to configure the setup diskettes.

1. Insert Windows 2000 Professional setup diskette # 1.
2. Open **TXTSETUP.SIF** in a text editor.
3. Under the **HardwareIdsDatabase** section, add one of the following lines:

IBM USB CDRom Drive (02N8239 / 33L5151)

USB\VID_04B3&PID_4427 = "usbstor" ;IBM USB CD-ROM VID/PID P/N 33L5151

IBM USB CDRW/DVD Drive (73P4516)

USB\VID_04DA&PID_0D0E = "usbstor" ;IBM USB Combo P/N 73P4516

4. If you do not have the Hardware ID for the specific CD-ROM device you are using, you can locate the **MachingDeviceID** key using the Windows **System Information** utility:
 - a. Plug the USB drive into any Windows XP, WEPOS or 2000 system. Wait until the system has detected the drive, and it is functional.
 - b. Open **System Information**, and look for the device you connected, under USB.

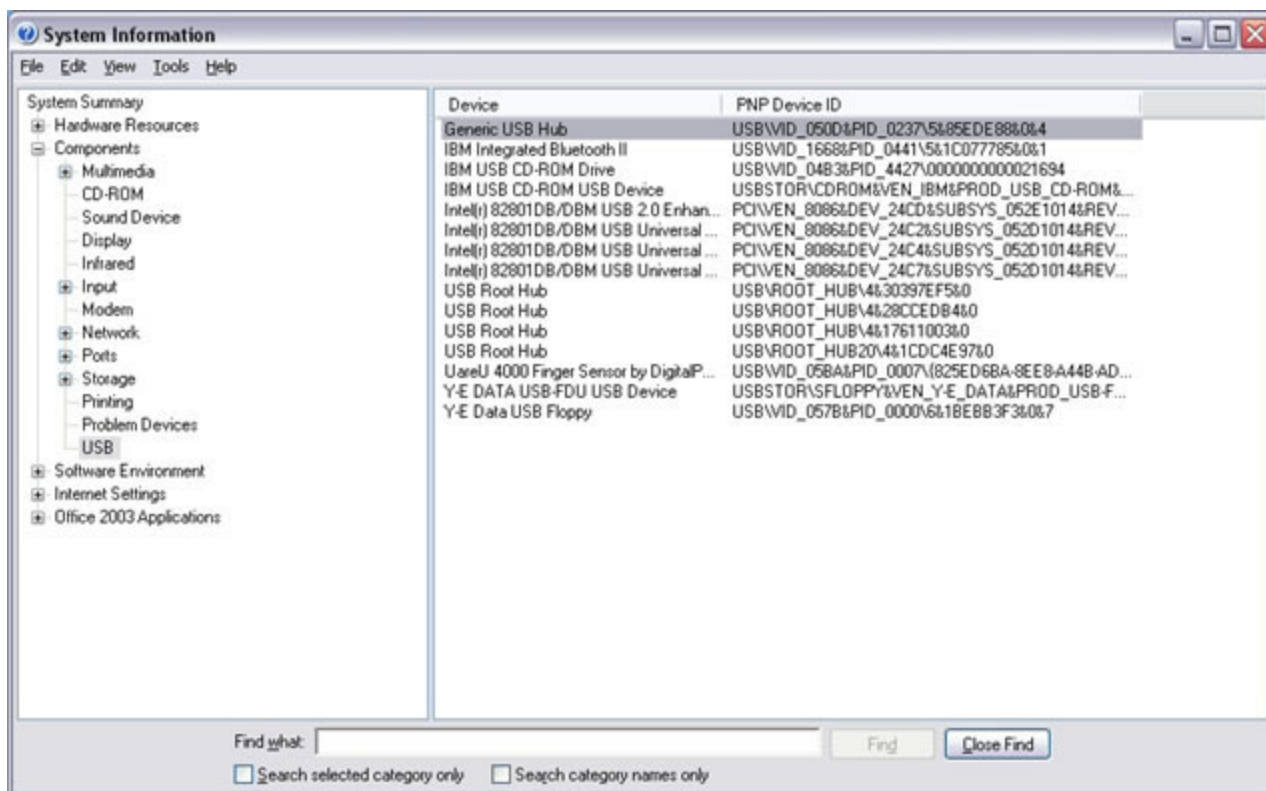


Figure 1. System information window

- c. Record the value for the PNP Device ID of your new device.
- d. Enter the **Vendor** and **Product ID** into the **TXTSETUP.SIF** file using the following format:
`"MatchingDeviceId" = "usbstor" ;Drive Description`

Table 2. Vendor/product ID for Windows 2000 Professional setup

"MatchingDeviceId"	Value from PNP Device ID
= "usbstore"	Leave as is, including quotes and spaces
;Drive Description	May be any text you like to identify your device.

5. Save **TXTSETUP.SIF** and exit the text editor.

Configuring BIOS setup

1. Power on the system and enter BIOS setup by pressing the key during POST, or by tapping the touch screen twice when prompted during POST.
2. Enter the **Advanced BIOS Features** menu.
3. Under the **Boot Device** selections, make the following changes:
 - First Boot Device = USB-FDD
 - Second Boot Device = HDD-0

Installing the operating system

1. Insert Disk 1 into the USB floppy drive, and place the Operating System installation CD in the USB.
2. Power on the system and boot from the Windows 2000 Professional disk.
3. Follow the prompts on the screen.

Note: You can also modify the **TXTSETUP.SIF** file on the CD Media as an alternate method of installation.

Chapter 3. Installing Windows XP and Windows Embedded for Point of Service (WEPOS)

The Windows XP, WEPOS installation process fully supports the SurePOS 500. No special considerations need to be made when installing the operating system. You can use the following method to install the operating system. USB CD-ROM installation does not require any modifications to use the Windows XP, WEPOS CD-ROM.

Requirements

- Windows XP, WEPOS CD-ROM
- USB or PS/2 Keyboard and Mouse
- External USB CD-ROM

Configuring BIOS setup

To configure BIOS setup, complete the following steps:

1. Power on the system and enter BIOS setup by pressing the key during POST, or by tapping the touch screen twice when prompted during POST.
2. Enter the **Advanced BIOS Features** menu.
3. Under the **Boot Device** selections, make the following changes:
 - First Boot Device = USB-CDROM
 - Second Boot Device = HDD-0

Installing the operating system

1. Power on the system and boot from the Windows XP or WEPOS CD-ROM.
2. Follow the prompts on the screen.

Chapter 4. Installing the Windows 2000/Windows XP and WEPOS drivers

The SurePOS 500 contains many components, which need specialized drivers in order to function properly. The following drivers must be installed in the order shown. Also, reboot the system between each driver installation.

You can always find the latest supported drivers for the SurePOS 500 at the IBM Retail Store Solutions support site, www.ibm.com/solutions/retail/store/support. This is the only supported source of drivers for the SurePOS 500.

SurePOS 500 required drivers

Each driver package contains its own installation instructions. The default settings provided during the installation are sufficient.

- VIA 4 in 1 Driver
- Ethernet Driver
- Video Driver
- Touch Screen Driver
- Windows Operating System Patches: Visit the Microsoft Windows Update support site for the latest patches at <http://windowsupdate.microsoft.com/>

Attention: Failing to install all of the required drivers might have an adverse impact on the stability and/or performance of the system.

Note: Even though a Serial ATA controller is used, no additional system drivers are required since the Serial ATA controller is configured to run in IDE emulation mode.

Chapter 5. DOS porting

This section provides a summary of information and tips that will assist you in porting a DOS application from an IBM 4840-xx1/xx2. The IBM SurePOS 4851-514 was designed from a BIOS and software standpoint to be similar to the IBM 4840-xx2.

This design allows for a simpler application porting process from the IBM 4840-xx2. Below are some of the differences in the drivers required to operate the IBM SurePOS 4851-514 in PC DOS 2000.

Video driver – not required

The video BIOS handles all video needs in DOS.

Ethernet driver

The SurePOS 500 Model 514 features the VIA VT8237 Ethernet Controller. You can download this driver from the IBM RSS support site. The ethernet package provides drivers for many common DOS network interfaces.

Touch screen driver

The SurePOS 500 Model 514 utilizes the ELO resistive touch screen driver. Download this driver from the external website. You calibrate the touch screen during POST. To calibrate the touch screen:

1. Power on the system.
2. Enter BIOS setup by pressing the key during POST, or by tapping the touch screen twice when prompted during POST.
3. Select the **Integrated Peripherals** menu.
4. Set the **Touch Calibration** item to **Linux/DOS**.
5. Press F10 to save settings and exit the BIOS setup.
6. Allow the system to reboot. When prompted, tap the touch screen three times to invoke touch screen calibration.
7. Follow the directions on the screen.

Serial ports

The SurePOS 500 Model 514 provides six serial ports for connection to various I/O devices. Table 3 lists the serial ports allocations.

Table 3. SurePOS 500 Model 514 serial port allocations

Function	External Connector	COM Port Assignment
Serial A	RS-232 9-pin D-shell	COM1
Serial B	RS-232 9-pin D-shell	COM2
Serial C	RS-232 9-pin D-shell	N/A Only accessible through direct I/O
Serial D/VFD (See note below)	RS-232 15-pin D-shell	COM4
MSR	RS-232 customer RJ-45 connector under the tablet	COM3

Table 3. SurePOS 500 Model 514 serial port allocations (continued)

Function	External Connector	COM Port Assignment
Touch Screen	None. Internally connected.	N/A. The touch screen driver communicates with this device through direct I/O.

Note: Serial Port D can only be used as an RS-232 read/write port for the following conditions:

- Serial Port D function in BIOS setup is set to VFD/RS-232 enabled
- No internal VFD is attached

Each serial port is configured with a static base I/O address and IRQ. By default, BIOS setup enables all serial ports to be functional. However, if the need arises, you can configure the serial ports with a custom base I/O address and IRQ from **Integrated Peripherals** in BIOS setup. Use caution when assigning COM ports, new base I/O addresses, and IRQs to prevent conflicts.

Upper memory map and EMM386.exe configuration

The SurePOS 500 Model 514 provides 32K of upper memory for usage by applications. You must use the EMM386.exe to access this memory. Below is a sample config.sys entry:

```
DEVICE=HIMEM.SYS
DEVICE=EMM386.EXE NOEMS I=D000-D7FF
```

SATA driver

The system BIOS handles all DOS SATA driver requirements.

Chapter 6. Troubleshooting

Table 4 lists some of the most common issues you can encounter during the installation of Windows 2000 and Windows XP and WEPOS. Ensure that you follow all directions in this guide to prevent unnecessary problems.

For additional information and support, visit the KnowledgeBase web site at www.ibm.com/solutions/retail/store/support. You can search this web site by entering your criteria in the search boxes provided. See Figure 2.

Knowledgebase Searches

Type a word or series of words. For example: SureMark and Printer

Point of Sale Information

IBM Information

Search only Point of Sale articles Search all IBM Knowledgebases

Figure 2. KnowledgeBase search

Table 4. Troubleshooting resolutions

Symptom	Resolution
Stop 0x0000007B during Windows Setup	This issue might be caused by one of the following: <ul style="list-style-type: none">• If installing Windows 2000, the installation media has not been modified to support the USB CD-ROM drive.• The hard disk has not been partitioned in either a FAT or FAT32 file system format.• The hard disk has not been formatted.
Error: EULA Missing during Windows Setup	The hard disk has not been formatted in a supported FAT32 file system. Use FORMAT.com to ensure the proper cluster size is used on the hard disk.
Error: No Operating System Found	Verify the following: <ul style="list-style-type: none">• Windows setup has not been run.• The partition where Windows is installing has not been set to active.• BIOS has not been configured to boot from the hard disk. Check the BIOS setup boot device list.
Touch screen not working.	Follow these steps: <ul style="list-style-type: none">• Plug in USB mouse.• Allow system to detect mouse.• Reboot your system.

For additional support, see the following resources:

- IBM Retail Store Solutions Support, www.ibm.com/solutions/retail/store/support/
- Microsoft Help and Support, <http://support.microsoft.com/>.

Appendix A. Memory map

Table 5. Memory map.

Note: Additional UMA memory cannot be freed by disabling system devices.

xxxxxxh	Open/RAM
100000h	
FFFFFh	128K POST/BIOS
E0000h	
DFFFFh	32K LAN RPL
D8000h	
D7FFFh	Open (32K)
D0000h	
CFFFFh	USB Legacy (directly after video BIOS)
CC800h	
CC7Fh	Video BIOS (up to 62K)
C0000h	
BFFFFh	Video (128K)
A0000h	
9FFFFh	Base RAM (640K)
00000h	

Appendix B. Model comparison

The following table describes the differences between the SurePOS 500 Model 532 and the SurePOS 500 Model 514.

Table 6. SurePOS 500 Model 532 versus the SurePOS 500 Model 514

Component	4840-532	4851-514
CPU	Intel P3 Celeron 1.2 GHz	VIA C3 1.2 GHz
FSB	133 MHz	133 MHz
Memory	64 MB -1GB	256 MG – 2 GB
Video	S3 Savage4 graphics with UMA memory configurable from 8M to 64M	S3 graphics with UMA memory configurable from 8M to 64M
I/O ports	PS2 keyboard/mouse* 3 standard RS-232 1 15-pin powered RS-232 6 PC USB 10/100 MB LAN (RPL/PXE) 2 24V cash drawer Parallel printer External CRT Legacy floppy	PS2 keyboard PS2 mouse 3 standard RS-232 1 15-pin powered RS-232 4 PC USB 1 24V powered USB 10/100 Mb LAN (RPL/PXE) 2 24V cash drawer
USB specification	USB 1.1 (12 M b/s max)	USB 2.0 (480 M b/s max)
Media	40 GB PATA hard drive USB Floppy (optional) USB CD-ROM (optional) Legacy floppy (optional) Compact flash (optional)	40 GB SATA hard drive USB floppy (optional) USB CD-ROM (optional)
TFT Display	12 in. single bulb	12 in. dual bulb
Touchscreen	3M resistive	ELO resistive
Feature card slot	None	
MSR	3 track (serial or keyboard wedge) JUCC (serial only)	3 track (serial or keyboard wedge) JUCC (serial only) With programmable configuration
Keylock	None	
Customer display	Integrated 2x20 VFD (optional) Distributed 2x20 VFD (optional) Distributed APA VFD (optional)	Integrated 2x20 VFD (optional) Distributed 2x20 VFD (optional) Distributed APA VFD (optional)
Audio	None	
Network	National ethernet (10/100 Mbps)	VIA ethernet (10/100 Mbps)
VGA display	Simultaneous video (standard)	Not supported
Boot sources	Floppy, HDD, LAN, USB device	Floppy, HDD, LAN, USB device
Packaging/cover	Integrated LCD on desktop unit	Integrated LCD on tower system unit
NVRAM	None	
O/S support	DOS, Windows 2000/XP, IRES V1,	DOS, Windows 2000/XP, IRES V2, WEPOS
	*Requires a Y cable to plug in both keyboard and mouse	

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Easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Well organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applicable to your tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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